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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,751	02/09/2002	Arjun Kar Roy	01CON211P	4492
25700	7590	11/17/2003	EXAMINER	
FARJAMI & FARJAMI LLP			CHU, CHRIS C	
16148 SAND CANYON			ART UNIT	
IRVINE, CA 92618			PAPER NUMBER	

2815

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

10/073,751

Applicant(s)

KAR ROY ET AL.

Examiner

Chris C. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 5, 7 - 13 and 15 - 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 5, 7 - 13 and 15 - 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Request for Continued Examination

1. A request for continued examination (RCE) under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 22, 2003 has been entered. An action on the RCE follows.

2. Applicant's amendment filed on September 22, 2003 has been received and entered in the case.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 - 5, 7 - 13 and 15 - 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Zhao et al.

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Regarding claim 1, Zhao et al. discloses in Fig. 2L an integrated circuit chip comprising:

- a first interconnect metal layer (204);
- a first intermetallic dielectric layer (205) situated over said first interconnect metal layer;
- a metal resistor (220, at the left-side) situated over said first intermetallic dielectric layer;
- a dielectric cap layer (222) patterned on said metal resistor;
- a second intermetallic dielectric layer (224) formed over said dielectric cap layer and metal resistor;
- a second interconnect metal layer (234) over said second intermetallic dielectric layer;
- a first intermediate via (232, at the left-side) connected to a first terminal of said metal resistor, said first intermediate via being further connected to a first metal segment patterned in said second interconnect metal layer;
- a second intermediate via (232, at the middle) connected to a second terminal of a metal resistor, the second intermediate via being further connected to a second metal segment patterned in said second interconnect metal layer.

Regarding claims 2 and 11, Zhao et al. discloses in Fig. 2L and column 6, lines 27 ~ 32 the metal resistor being tantalum nitride

Regarding claims 3 and 16, Zhao et al. discloses in Fig. 2L and column 4, lines 12 ~ 17 the first interconnect metal layer (204) comprising aluminum.

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Regarding claims 4 and 12, Zhao et al. discloses in Fig. 2L and column 4, lines 18 ~ 38 the first intermetallic dielectric layer comprising HDPCVD silicon dioxide.

Regarding claims 5 and 13, Zhao et al. discloses in Fig. 2L and column 4, lines 18 ~ 38 the second intermetallic dielectric layer comprising undoped silica glass (HDPCVD SiO₂ constitutes an undoped silica glass).

Regarding claims 7 and 15, Zhao et al. discloses in Fig. 2L and column 7, lines 17 ~ 20 the dielectric cap layer comprising silicon nitride.

Regarding claims 8 and 17, Zhao et al. discloses in Fig. 2L and column 7, lines 17 ~ 20 an oxide cap layer (222) situating between a metal resistor and a dielectric layer.

Regarding claims 9 and 18, Zhao et al. discloses in Fig. 2L and column 7, lines 17 ~ 20 the oxide cap layer comprising PECVD silicon dioxide.

Regarding claim 10, Zhao et al. discloses in Fig. 2L an integrated circuit chip comprising:

- a first interconnect metal layer (204);
- a first intermetallic dielectric layer (205) situated over said first interconnect metal layer;
- a metal resistor (220, at the left-side) situated over said first intermetallic dielectric layer;
- a dielectric cap layer (222) patterned on said metal resistor;
- a second intermetallic dielectric layer (224) formed over said dielectric cap layer and metal resistor;
- a second interconnect metal layer (234) over said second intermetallic dielectric layer;

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- a first intermediate via (232, at the left-side) connected to a first terminal of said metal resistor;
- a second intermediate via (232, at the middle) connected to a second terminal of the metal resistor.

Response to Arguments

5. Applicant's arguments with respect to claims 1 and 10 have been considered but are moot in view of the new ground(s) of rejection.

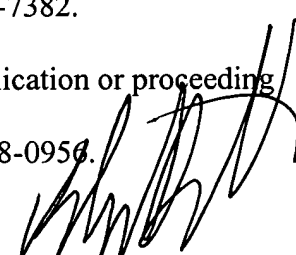
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chris C. Chu whose telephone number is (703) 305-6194. The examiner can normally be reached on M-F (10:30 - 7:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (703) 308-2772. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Chris C. Chu
Examiner
Art Unit 2815


BRADLEY BAUMEISTER
PRIMARY EXAMINER

c.c.
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